

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A medical device for electrical stimulation of neural tissue and controlled drug delivery comprising:
 - an implantable drug delivery module which comprises
 - a substrate having a plurality of reservoirs,
 - a release system contained in each of the reservoirs, wherein the release system comprises at least one drug,
 - a plurality of discrete reservoir caps, each being in register with an opening of one of the reservoirs, separating the release system from an environment outside of the reservoirs, and
 - means for disintegrating one or more of the reservoir caps by electrothermal ablation to release the at least one drug from one or more of the reservoirs;
 - a neural electrical stimulator which comprises
 - a signal generator, and
 - at least one stimulation electrode for operable engagement with a neural tissue of a patient, wherein the at least one stimulation electrode is connected to the signal generator; and
 - at least one microcontroller for controlling operational interaction of the drug delivery module and the neural electrical stimulator.
 2. (Previously Presented) The medical device of claim 1, wherein the at least one microcontroller controls both the signal generator and the means for disintegrating one or more of the reservoir caps of the drug delivery module.

3. (Previously Presented) The medical device of claim 1, further comprising a power source operably connected to the means for disintegrating one or more of the reservoir caps, the neural electrical stimulator, the at least one microcontroller, or a combination thereof.
4. (Withdrawn) The medical device of claim 1, wherein the stimulation electrode is on an outer surface of a hermetically sealed encasement containing the drug delivery module and microcontroller.
5. (Previously Presented) The medical device of claim 1, further comprising a hermetically sealed encasement containing the drug delivery module and microcontroller, wherein the stimulation electrode extends a distance from the hermetically sealed encasement.
6. (Previously Presented) The medical device of claim 5, wherein a flexible catheter connects the stimulation electrode to the encasement.
7. (Previously Presented) The medical device of claim 1, further comprising telemetry components in operable communication with the microcontroller.
8. (Withdrawn) The medical device of claim 1, wherein the neural electrical stimulator is provided as a module separate from the drug delivery module.
9. (Withdrawn) The medical device of claim 8, wherein the neural electrical stimulator module is implantable.
10. (Withdrawn) The medical device of claim 8, wherein the drug delivery module is controlled by a telemetry or hard-wired signal from the stimulator module.
11. (Withdrawn) The medical device of claim 8, comprising two microcontrollers, one of which controls the stimulator module and the other which controls the drug delivery module.

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AMENDMENT AND
RESPONSE TO OFFICE ACTION

12. (Previously Presented) The medical device of claim 1, adapted to treat chronic pain in a patient.
13. (Previously Presented) The medical device of claim 1, adapted to treat a movement disorder in a patient.
14. (Previously Presented) The medical device of claim 1, adapted to treat incontinence in a patient.
15. (Previously Presented) The medical device of claim 1, adapted to treat obesity in a patient.
16. (Previously Presented) The medical device of claim 1, adapted to control seizures in a patient.
17. (Original) The medical device of claim 1, wherein the drug delivery module comprises a microchip drug delivery device.
- 18-19. (Cancelled).
20. (Original) The medical device of claim 1, further comprising one or more sensors operable to deliver a signal to the microcontroller.
21. (Original) The medical device of claim 20, wherein the one or more sensors control release of the drug from the drug delivery module and control generation of an electrical current from the neural stimulator to neural tissue.
22. (Original) The medical device of claim 1, wherein the drug is an analgesic, an anti-anxiety agent, an anti-incontinence agent, a skeletal muscle relaxant, an anti-convulsant, or an anti-parkinson agent.

23. (Currently Amended) A method of treating a patient comprising delivery of an electrical signal and at least one drug to a patient in need thereof comprising:
- implanting into the patient the implantable drug delivery module of the medical device of claim 1 a device comprising a drug delivery module which comprises a plurality of discrete reservoirs, each containing a drug, and a plurality of discrete reservoir caps, each in register with an opening of one of the reservoirs;
- bringing the an stimulator electrode into operable engagement with a neural tissue of the patient;
- activating the a signal generator to deliver electrical stimulation from the stimulator electrode to the neural tissue of the patient; and
- passing an electric current through one or more of the discrete reservoir caps to disintegrate the one or more discrete reservoir caps by electrothermal ablation, thereby to release releasing the drug from one or more of the reservoirs into the patient.
24. (Original) The method of claim 23, wherein the drug and the electrical neural stimulation are delivered simultaneously.
25. (Original) The method of claim 23, wherein the drug is delivered intermittently or continuously.
26. (Original) The method of claim 23, wherein the electrical stimulation is delivered intermittently or continuously.
27. (Original) The method of claim 23, wherein the drug is released before the electrical neural stimulation and is effective to reduce the stimulation threshold of the neural tissue.
28. (Original) The method of claim 23, wherein release of the drug is alternated with the delivery of the electrical stimulation.
29. (Withdrawn) The method of claim 23, wherein the neural electrical stimulator is provided as a module separate from the drug delivery module.

30. (Withdrawn) The method of claim 29, further comprising implanting the neural electrical stimulator into the patient.
31. (Previously Presented) The method of claim 23, which is used to treat chronic pain in the patient.
32. (Previously Presented) The method of claim 23, which is used to treat a movement disorder in the patient.
33. (Previously Presented) The method of claim 23, which is used to treat incontinence in the patient.
34. (Previously Presented) The method of claim 23, which is used to treat obesity in the patient.
35. (Previously Presented) The method of claim 23, which is used to control seizures in the patient.
36. (Previously Presented) The medical device of claim 1, wherein the implantable drug delivery module comprises a catheter or tube, the plurality of reservoirs being located proximate to an end of the catheter or tube.
37. (New) The medical device of claim 1, wherein the body comprises silicon and the discrete reservoir cap comprises at least one metal film.
38. (New) The medical device of claim 37, wherein the discrete reservoir cap comprises a multi-layer structure comprising platinum and titanium.
39. (New) The method of claim 23, wherein the device further comprises at least one microcontroller for controlling operational interaction of the drug delivery module and the neural electrical stimulator.